OWNER'S MANUAL

Black & Decker®

No. 4300
PROFESSIONAL DRILL BIT SHARPENER

COMPLIES WITH OSHA

This professional tool is designed for fast, accurate sharpening of right-hand, 2-flute twist drill bits from ⅛" to ½" in diameter. DO NOT attempt to sharpen carbide-tipped or cobalt bits.

Since proper procedure is essential to satisfactory results, read the operating instructions carefully. Also, for your own protection, pay close attention to the safety rules. Don't forget to send in the guarantee registration card.

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You and your new B&D drill bit sharpener

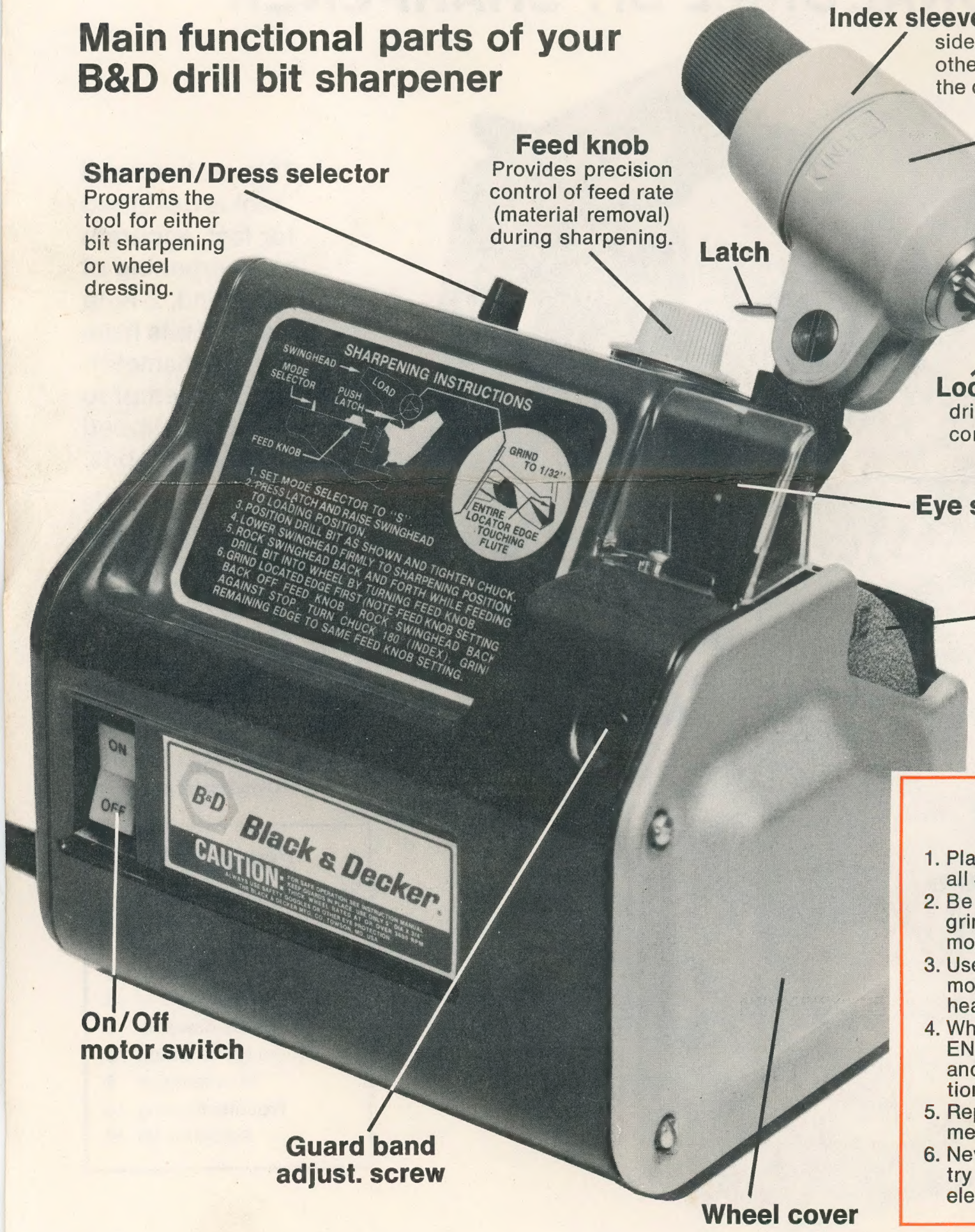
Designed to save you money... bit by bit.

This B&D drill bit sharpener is a completely different, carefully engineered heavy-duty tool. Nothing else will give you professional results at such extraordinarily low cost. Properly used, it will return dull, worn bits to like-new condition.

Take time for a get-acquainted look.

The B&D drill bit sharpener is relatively easy to use. But it does require a little "learning" to become expert. So, for a start, think of your B&D sharpener as the best bench grinder you've ever used—with some very important differences. Differences that will enable you, after a little practice, to accurately sharpen a twist drill bit in 60 seconds or less.

Main functional parts of your B&D drill bit sharpener


SHARPENING INSTRUCTIONS
SWINGHEAD
MODE SELECTOR
PUSH LATCH
LOAD
FEED KNOB
GRIND TO 1/32"
ENTIRE LOCATOR EDGE TOUCHING FLUTE
1. SET MODE SELECTOR TO "S".
2. PRESS LATCH AND RAISE SWINGHEAD TO LOADING POSITION.
3. POSITION DRILL BIT AS SHOWN AND TIGHTEN CHUCK.
4. LOWER SWINGHEAD FIRMLY TO SHARPENING POSITION.
5. ROCK SWINGHEAD BACK AND FORTH WHILE FEEDING DRILL BIT INTO WHEEL BY TURNING FEED KNOB.
6. GRIND LOCATED EDGE FIRST (NOTE FEED KNOB SETTING). BACK OFF FEED KNOB. ROCK SWINGHEAD BACK AGAINST STOP. TURN CHUCK 180° (INDEX). GRIND REMAINING EDGE TO SAME FEED KNOB SETTING.
ON
OFF
B&D
Black & Decker
CAUTION

Index sleeve Permits you to sharpen first one side of the drill bit tip, and then the other side without removing the bit from the chuck.

Swinghead Lets you move the bit across the grinding wheel at the correct angle repeatedly.

Chuck Holds bit in position during sharpening operation.

Locator Guides positioning of drill bit so that sharpening will be correct and accurate.

Sharpen/Dress selector Programs the tool for either bit sharpening or wheel dressing.

Feed knob Provides precision control of feed rate (material removal) during sharpening.

Latch

Eye shield

Grinding wheel

On/Off motor switch

Guard band adjust. screw

Wheel cover

REMEMBER

1. Play it safe—know and follow all SAFETY RULES.
2. Be sure locator is clear of grinding wheel before starting motor.
3. Use light pressure and an even motion in rocking the swinghead when grinding.
4. When shifting from BIT SHARPENING to WHEEL DRESSING—and vice versa—follow instructions with extra care.
5. Replace a cracked wheel immediately.
6. Never disassemble the tool or try to do any rewiring in the electrical system.

Mounting the sharpener

FOR BEST RESULTS YOUR SHARPENER SHOULD BE MOUNTED TO A FIRM WORK SURFACE. Drill two 5/16" holes in work bench as shown in Figure 1. Insert two 1/4" diameter carriage bolts. Slide Sharpener over bolt heads and fit bolt heads into openings provided in bottom of tool (Figure 2). Tighten nuts on bolts evenly with moderate force. Do not overtighten!

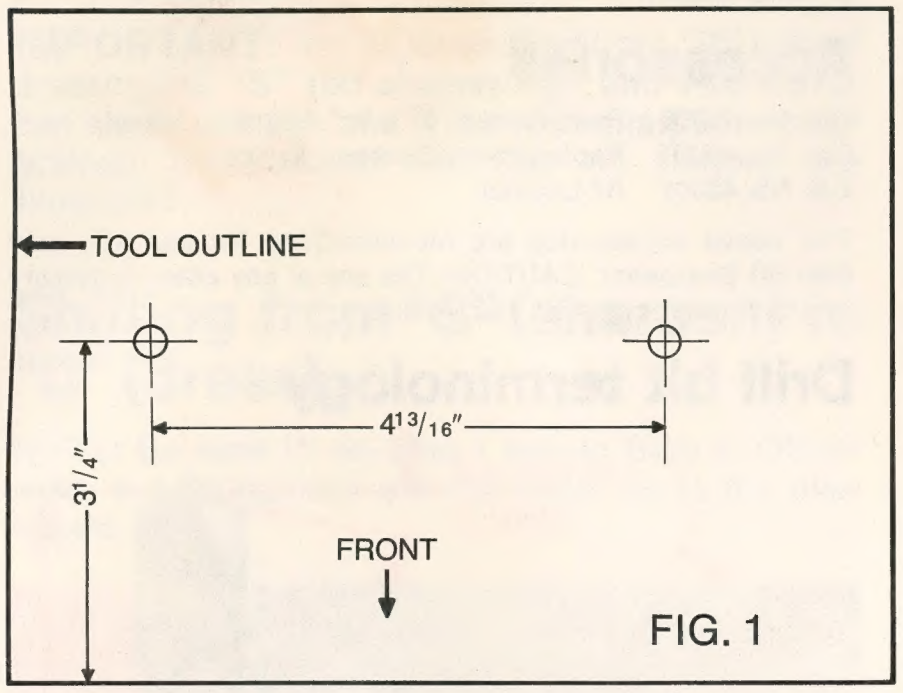
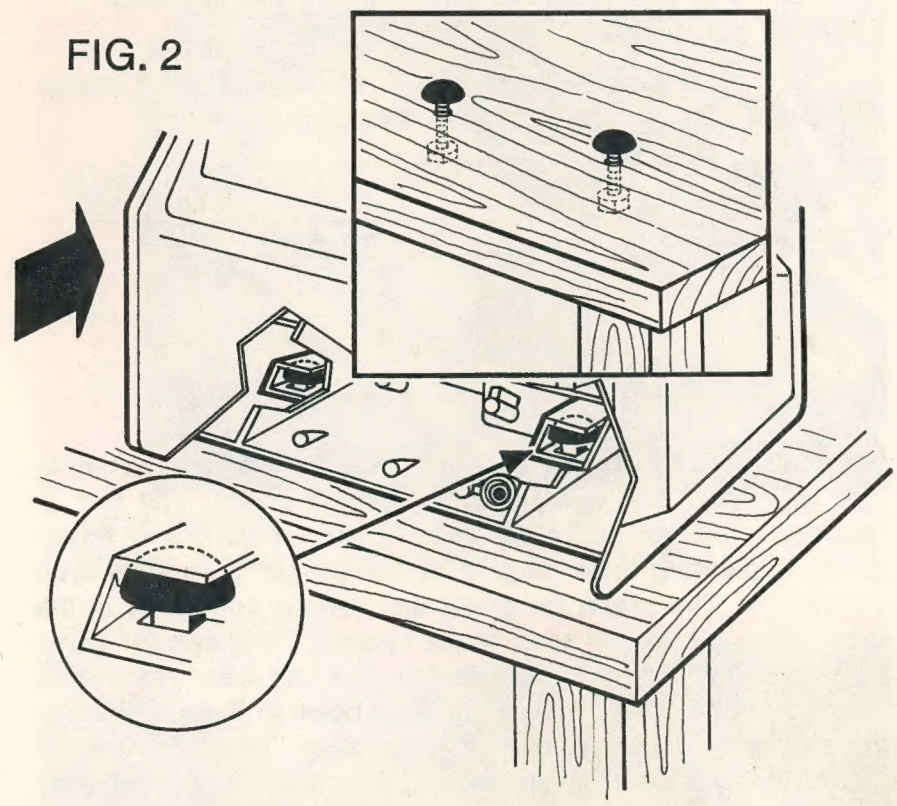


FIG. 1

FIG. 2



Safety rules

SAFETY SEAL pti power tool institute

Safety rules for stationary power tools

1. KNOW YOUR POWER TOOL. Read the owner's manual carefully. Learn its application and limitation, as well as the specific potential hazards peculiar to this tool.
2. KEEP GUARDS IN PLACE and in working order.
3. GROUND ALL TOOLS. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter wire must be attached to a known ground. Never remove the third prong.
4. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed before turning on tool.
5. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
6. AVOID DANGEROUS ENVIRONMENT. Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep your work area well illuminated.
7. KEEP CHILDREN AWAY. All visitors should be kept a safe distance from work area.
8. MAKE WORKSHOP KIDPROOF — with padlocks, master switches, or by removing starter keys.
9. DON'T FORCE TOOL. It will do the job better and be safer at the rate for which it was designed.
10. USE RIGHT TOOL. Don't force tool or attachment to do a job it was not designed for.
11. WEAR PROPER APPAREL. No loose clothing or jewelry to get caught in moving parts.
12. USE SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty.
13. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.
14. DON'T OVERREACH. Keep your proper footing and balance at all times.
15. MAINTAIN TOOLS IN TOP CONDITION. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. DISCONNECT TOOLS before servicing and when changing accessories such as blades, bits, cutters.
17. USE RECOMMENDED ACCESSORIES. Consult owner's manual. Use of improper accessories may be hazardous.
18. AVOID ACCIDENTAL STARTING. Make sure switch is off before plugging in cord.

Additional Safety Rules for the Drill Bit Sharpener

1. Always use guards and eye shield. Always wear safety glasses or other eye protection when operating this tool and keep the eye shield mounted in proper position.
2. Replace a cracked wheel immediately. Handle grinding wheels carefully to avoid bumping or dropping. DO NOT use a grinding wheel that has been dropped. Before using, inspect each grinding wheel for cracks or flaws and if these are evident, discard the wheel.
3. Before mounting a new wheel, be sure that it is marked with an R.P.M. that is the same as, or higher than, the no-load speed of the tool as marked on the nameplate.
4. Do not overtighten wheel nut.
5. Use only clamp washers furnished with this tool.
6. CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to assure that it will operate properly and perform its intended function—check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
7. Bolt Drill Bit Sharpener to a bench to prevent movement.
8. Use accessories only in the proper and intended manner.

Extension cord

When using the tool at a considerable distance from power source, a 3 conductor grounding-type extension cord of adequate size must be used for safety and to prevent loss of power and over-heating. Use the table below to determine the minimum wire size required.

Use only three wire extension cords which have three-prong grounding-type plugs and three-pole receptacles which accept the tool's plug. Replace or repair damaged cords.

Ampere rating (on nameplate)	0 to 2.0	2.10 to 3.4	3.5 to 5.0	5.10 to 7.0	7.10 to 12.0	12.1 to 16.0
Ext. Cable length	Wire Size (A.W.G.)					
25 ft.	18	18	18	18	16	14
50 ft.	18	18	18	16	14	12
75 ft.	18	18	16	14	12	10
100 ft.	18	16	14	12	10	—
150 ft.	16	14	12	12	—	—
200 ft.	16	14	12	10	—	—

Grounding

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts, it has a plug like that shown in Figure A. If it is for use on 150 to 250 volts, it has a plug like that shown in Figure D. An adapter, Figures B and C, is available for connecting Figure A plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., must be connected to a permanent ground such as a properly grounded outlet box. No adapter is available for a plug as shown in Figure D. Adapter shown in Figures B & C is not for use in Canada.

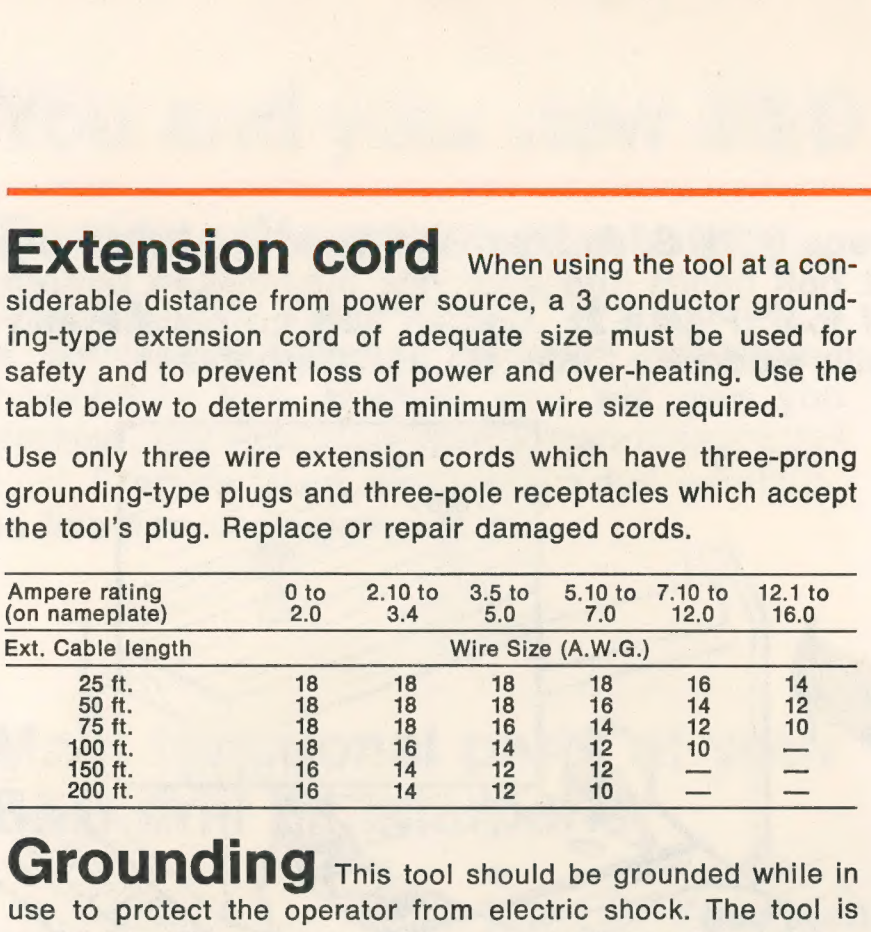


FIG. 3

We recommend that you NEVER disassemble the tool or try to do any rewiring in the electrical system. Any such repairs should be performed only by B&D Service Centers or other qualified service organizations. Should you be determined to make a repair yourself, remember that the green colored wire is the "grounding" wire. Never connect this green wire to a "live" terminal.

Standard equipment

1. Special grinding wheel with 3° bevel on sharpening surface.
2. Diamond wheel dresser.
3. Extra locator.

Accessories

Cat. No. 43000 Replacement 5″ x ¾″ Grinding Wheel.
Cat. No. 43001 Replacement Diamond Dresser.
Cat. No. 43002 Bit Locator.

The above accessories are recommended for use with your Drill Bit Sharpener. CAUTION: The use of any other accessory or attachment might be hazardous.

Drill bit terminology

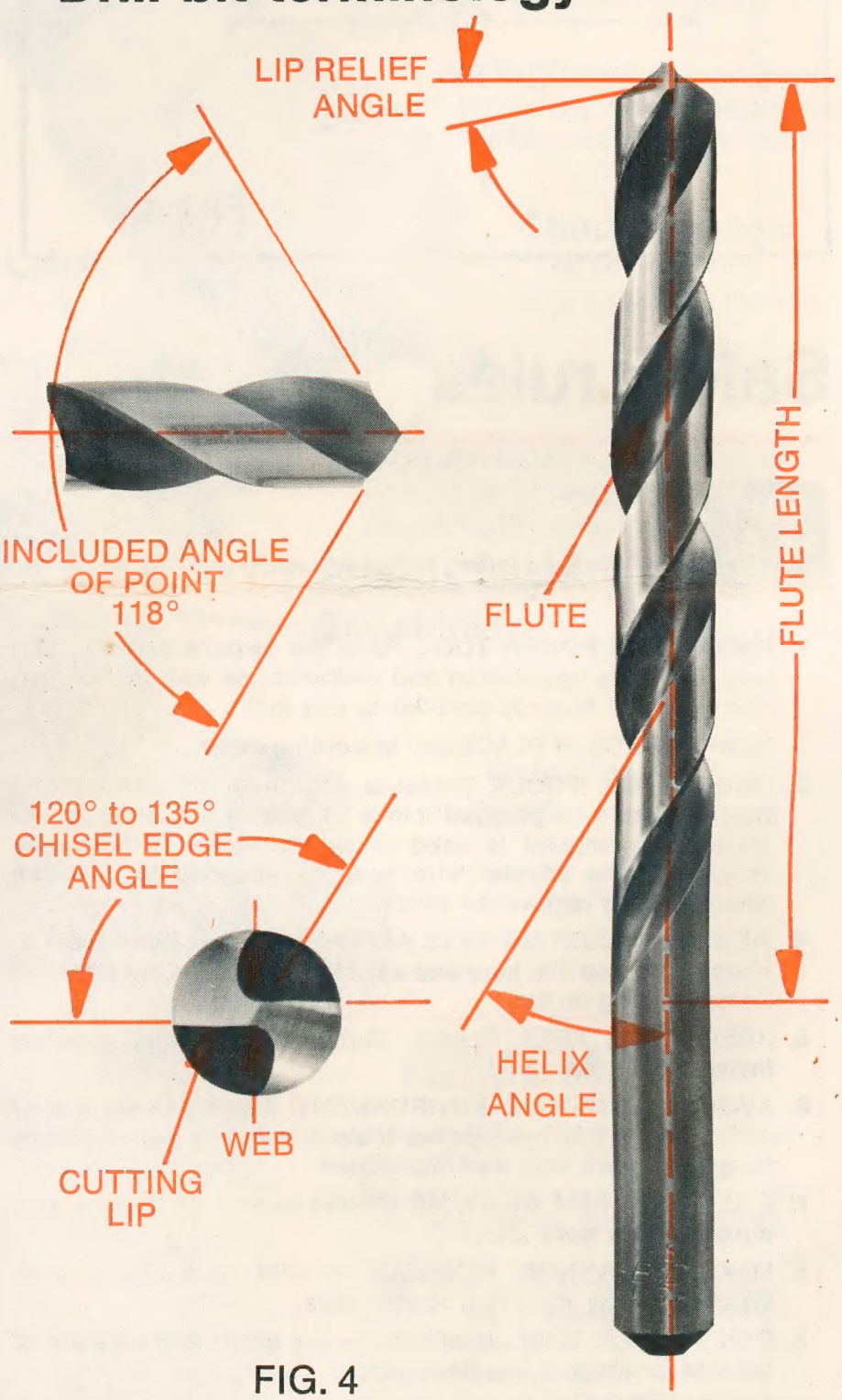


FIG. 4

A primary requirement for drilling accurately sized holes is that there be minimal difference between the lip heights of the two flutes. Variations in the two lip heights will alter the centrality of the point which will produce eccentric drilling. See paragraph 6 of *Troubleshooting* on page 10. Your B&D sharpener is engineered to produce equal lip heights and a centrally located point.

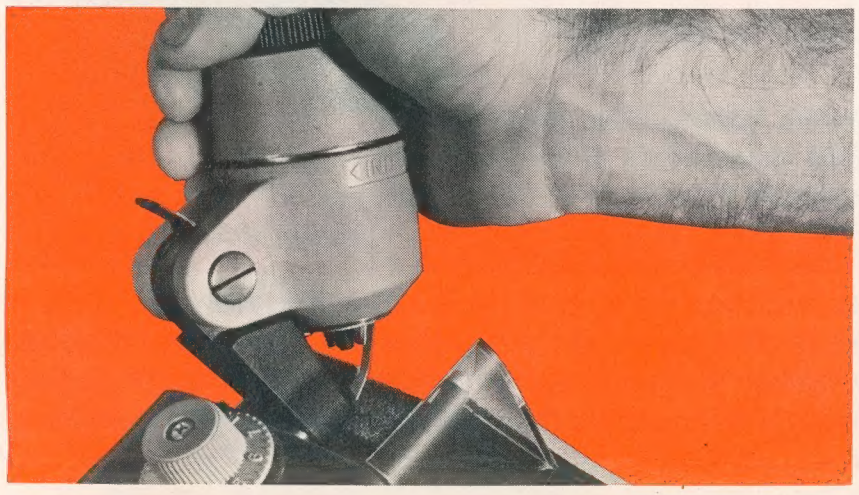
Shifting selector to sharpen bits or dress wheel

When you are ready to sharpen bits, the selector switch must be in the "S" (sharpen) position. The "D" (dress) position is used when dressing the grinding wheel.

IMPORTANT: Improper shifting from "D" (wheel dressing) to "S" (bit sharpening), and vice versa, can cause damage and make your sharpener inoperative. The correct methods of shifting are illustrated.

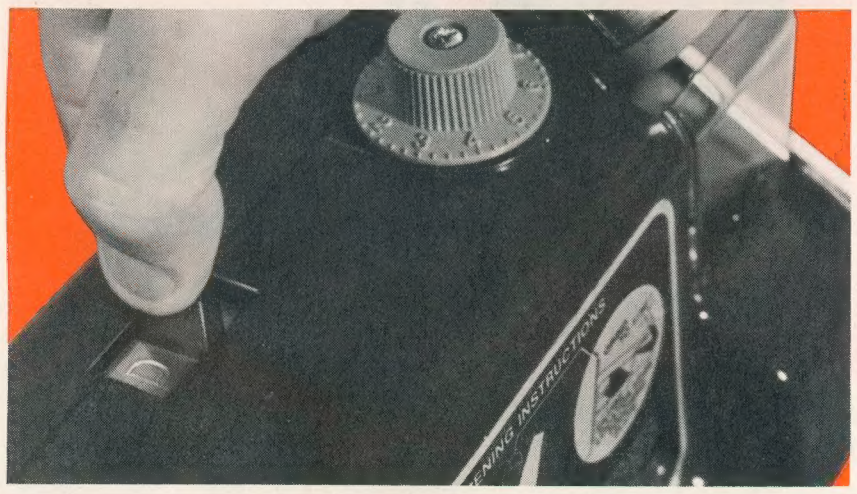
Shifting from "S" (sharpen) to "D" (dress)

NOTE: Be sure to do Step 1 before Step 2. Otherwise, the swinghead will not move up to the eyeshield.



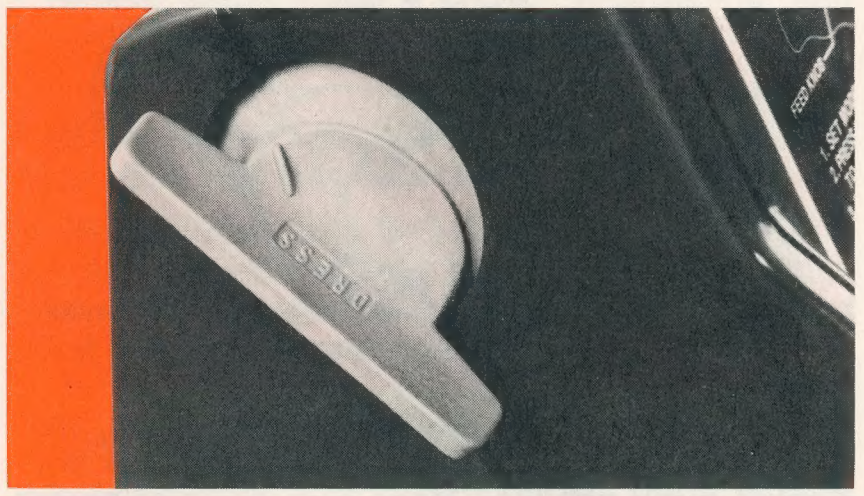
1. Pivot swinghead to normal sharpening position.

2. Rotate swinghead until it touches the eyeshield.

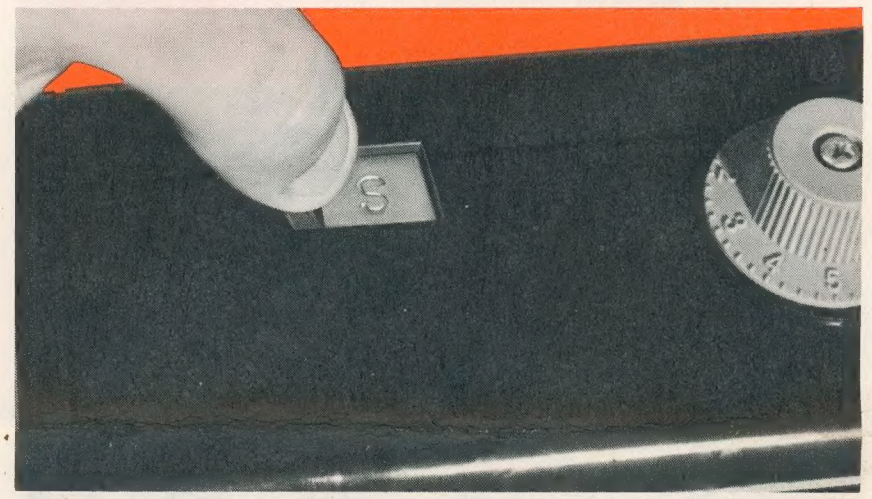


3. Move mode selector switch to "D".

Shifting from "D" (dress) to "S" (sharpen)



1. Line up mark on dress knob with parting line of housing. Position swinghead close to the eyeshield.



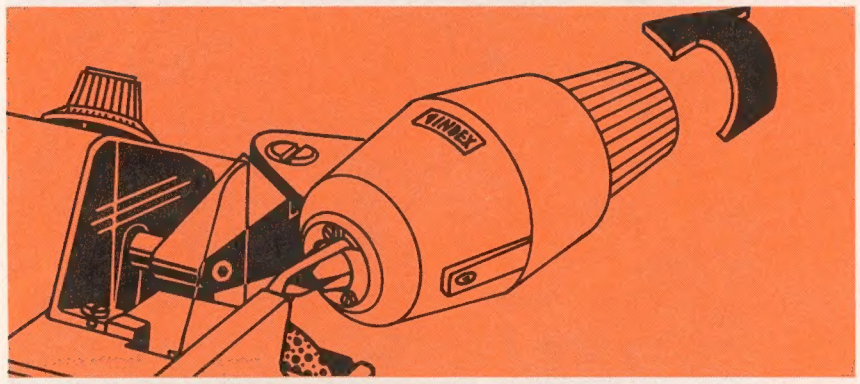
2. Shift mode selector to "S". DO NOT FORCE.

If selector switch will not seat, rock dress knob back and forth while keeping *slight* pressure on selector switch until it snaps into place.

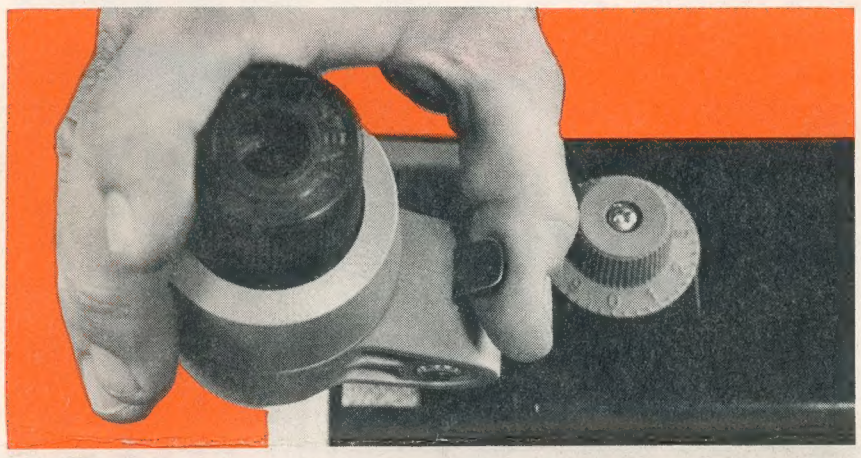
Sharpening of drill bits

Preparing to sharpen

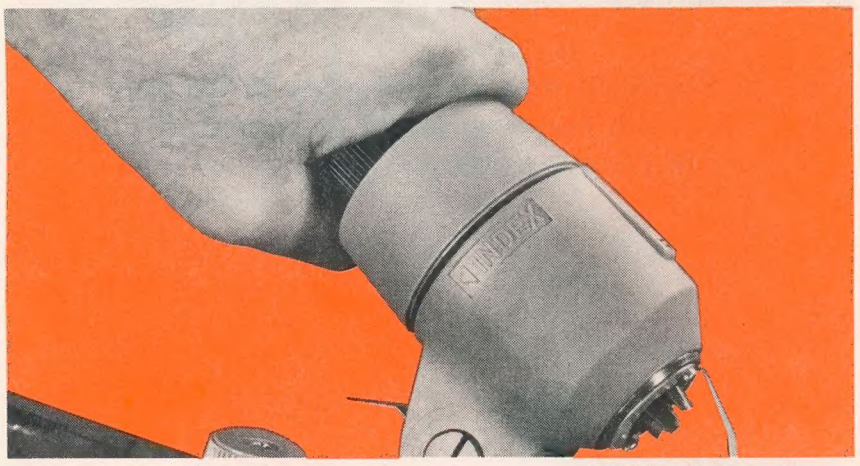
NOTE: First, check the unit for the adjustments explained under "Adjustments" on page 10.



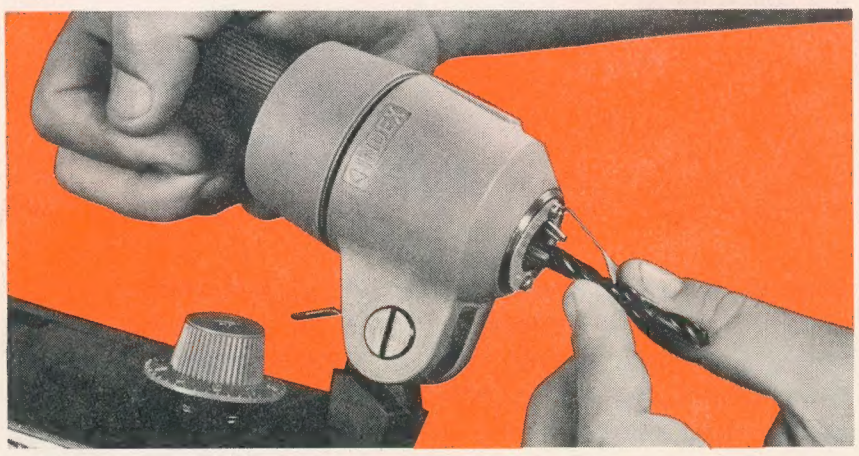
1. The swinghead has two indexing positions, 180° apart. Rotate sleeve to make sure it is seated, with locator in top position. Make sure selector switch on top of the tool is in the "S" (sharpen) position.



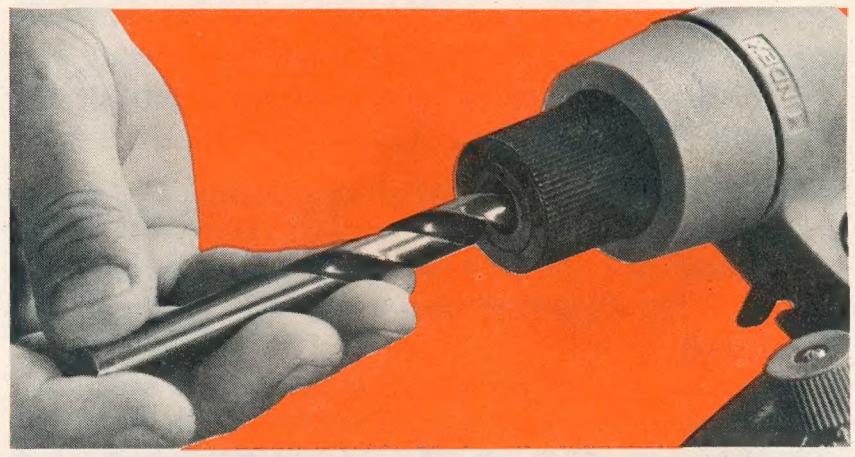
2. Press latch toward swinghead and move swinghead toward loading position.



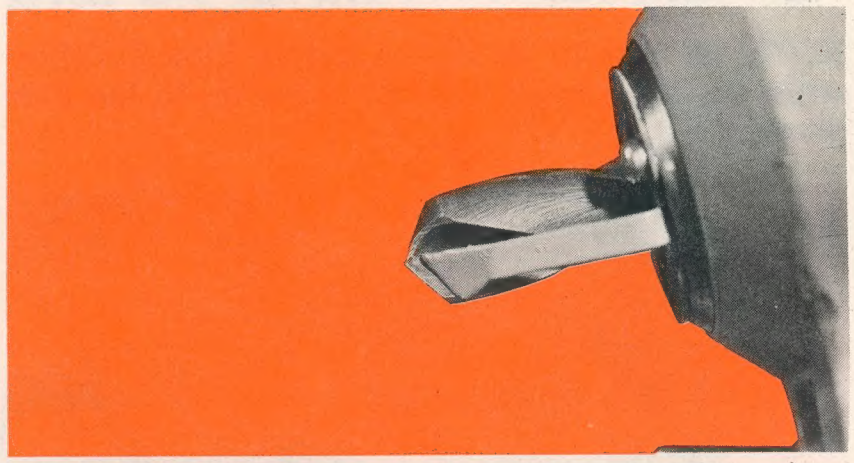
3. Open chuck jaws by turning chuck nut counterclockwise.



4. Insert smaller diameter bits past the locator directly into the chuck.



5. Insert larger diameter bits through the opening in the chuck head.

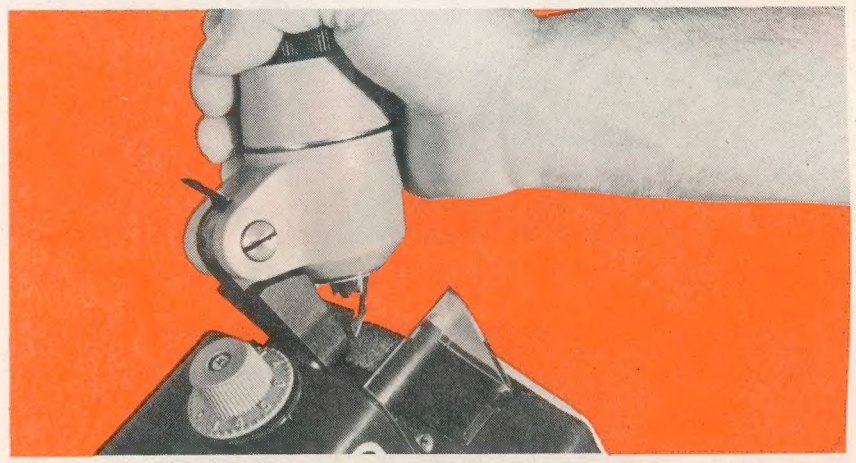


6. Position bit so that tip is approximately 1/16" below end of locator. *Be sure straight edge at end of locator is flat against flute. This positioning of the bit with the locator is the key to satisfactory sharpening.*

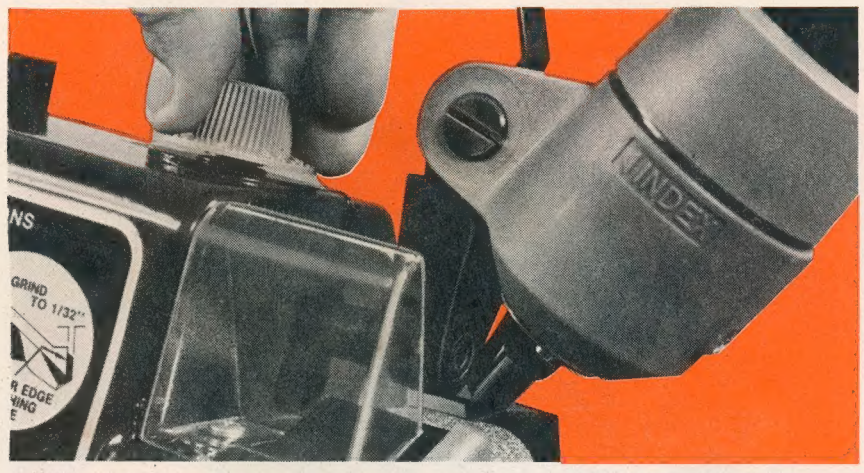
Sharpening

NOTE: Broken bits are more easily sharpened if they are first roughed into shape by hand on a bench grinder. This will eliminate unnecessary wear on the grinding wheel.

First cutting lip



1. With motor "OFF", lower swinghead to sharpening position.



2. Turn feed knob clockwise until bit is almost touching the wheel when swinghead is rocked back and forth.

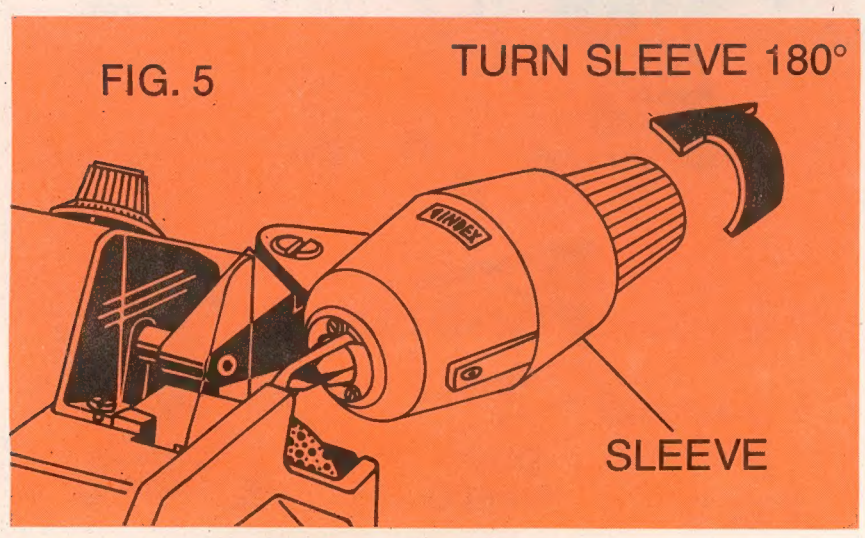
NOTE: Turning feed knob clockwise feeds bit into wheel; turning counterclockwise backs bit away from wheel.

3. Turn motor "ON". Gently rock swinghead back and forth as you turn the feed knob clockwise. DO NOT USE HEAVY HAND PRESSURE WHEN ROCKING THE SWINGHEAD.

Important: Advancing the feed knob one number (e.g., 2 to 3) moves the bit 5 thousandths of an inch closer to the wheel. Each calibration (mark) between numbers moves the bit 1¼ thousandths.

4. Moving the feed knob clockwise one calibration (mark) at a time, continue to rock the swinghead across the wheel until the edge of the bit is about 1/32" from the end of the locator. BE CAREFUL NOT TO GRIND LOCATOR. **IMPORTANT:** *Make a note of the final feed knob setting because you'll need it when you sharpen the second lip.*

5. Now turn feed knob counterclockwise several turns to back bit away from grinding wheel.



6. Move swinghead down and back to rest position illustrated. Rotate sleeve 180° clockwise until it snaps into the second index position. (The locator will now be on the underside of the chuck.)

Sharpening

Second cutting lip

1. Repeat steps 3 and 4 under "Sharpening, first cutting lip."

2. STOP SHARPENING WHEN THE FEED KNOB REACHES THE CALIBRATION YOU NOTED.

For finest finish, turn feed knob one more calibration and grind bit. Without touching feed knob, turn sleeve 180° clockwise (step 6 on this page) and grind first lip until sparking stops.

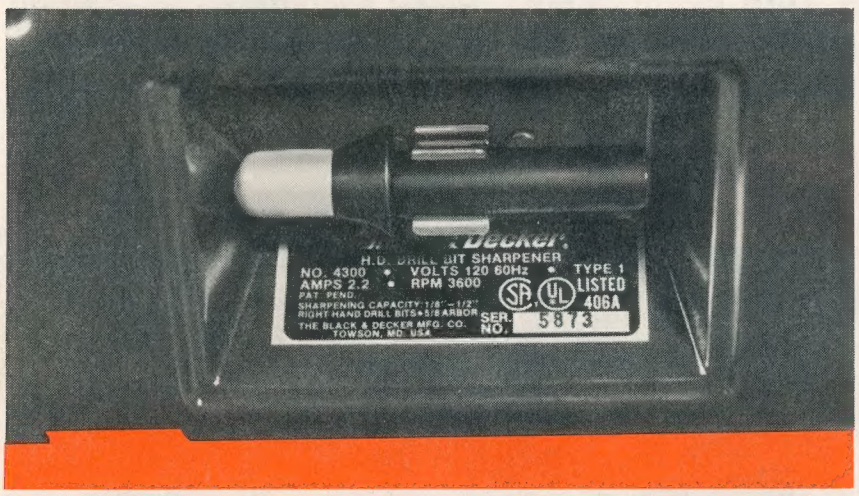
3. Turn motor "OFF". Raise swinghead to loading position and remove bit. CAUTION: Tip of bit may be hot.

Wheel dressing

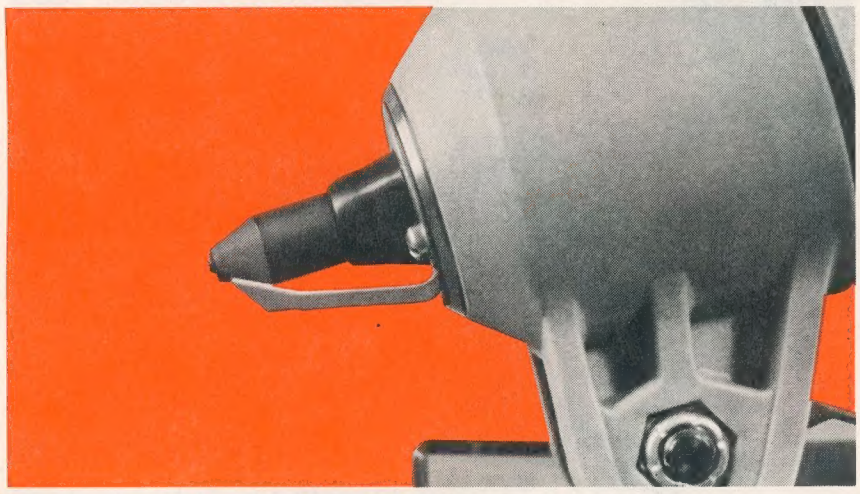
The special grinding wheel included with your B&D drill bit sharpener is ready to sharpen your bits. When the sharpening surface becomes worn and uneven, it's time to dress the wheel. Follow these steps:

IMPORTANT: See instructions for shifting from "S" (sharpen) to "D" (dress) under SHIFTING SELECTOR TO SHARPEN BITS OR DRESS WHEEL page 5. After you have taken the necessary steps, proceed to:

1. Press latch and move swinghead to loading position.


H.D. DRILL BIT SHARPENER
NO. 4300 • VOLTS 120 60Hz • TYPE 1
AMPS 2.2 • RPM 3600
LISTED
406A
SER. NO. 5873
THE BLACK & DECKER MFG. CO.
TOWSON, MD. USA

2. Take diamond dressing tool which is kept in the spring-clip in back of the sharpener. Remove protective sleeve. Position the dust shield as shown below. Position diamond dresser in chuck, with

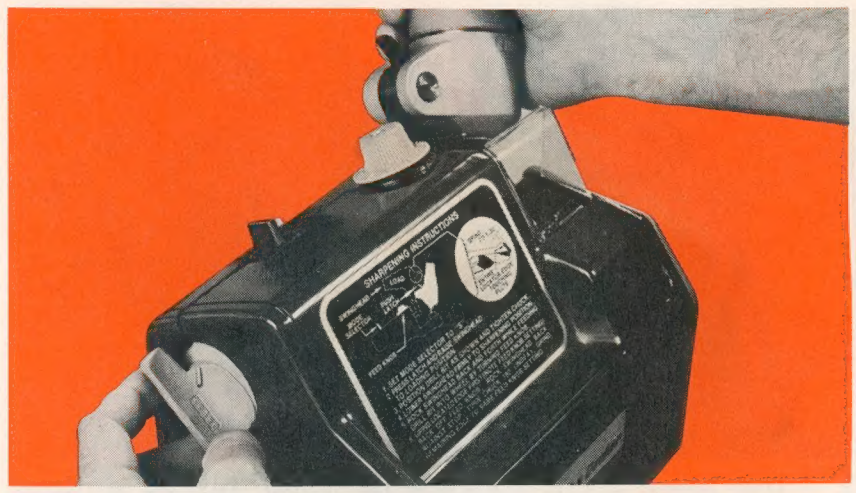


diamond tip $\frac{1}{16}$" beyond locator as illustrated. Tighten chuck jaws by turning chuck nut clockwise. Slide dust shield up against face of chuck to prevent grit and dust from fouling chuck.

3. Move swinghead downward until latch engages. Adjust feed knob clockwise until diamond tip almost touches sharpening surface of the grinding wheel.

4. With SLIGHT PRESSURE, push swinghead back and away from eyeshield until it stops.

5. Turn motor "ON". Maintain light pressure, away from the eyeshield, on the swinghead. Move the diamond back and forth across the wheel by turning



the dress knob clockwise and counterclockwise. Feed the diamond into the wheel by turning the feed knob, clockwise, one calibration at a time. Smooth, continuous motion completely across the face of the wheel will provide a smoother finish. Stopping the diamond on the wheel will score it. Removing wheel material during the outside-to-inside motion of the diamond will assure a finer finish.

6. Turn motor "OFF". Back off feed knob (turn counterclockwise) enough so that diamond clears sharpening surface of wheel. Return swinghead to loading position. Remove diamond dresser and dust shield.

To change from "D" (dressing) to "S" (sharpening)

1. Line dress knob mark up with parting line of housing.

2. Move swinghead close to eyeshield.

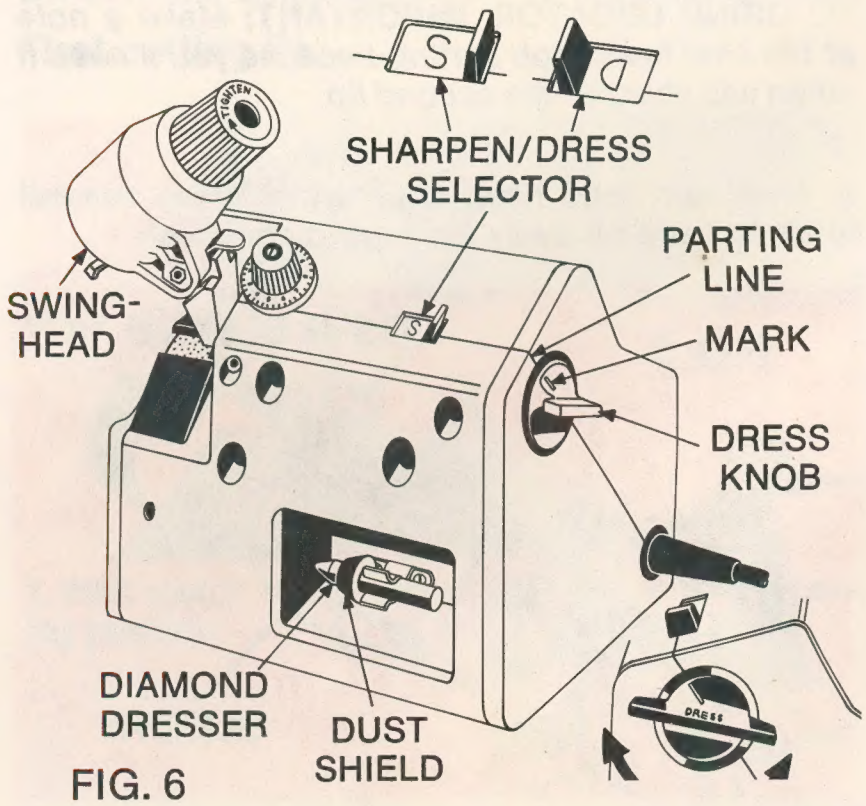


FIG. 6

3. Shift mode selector to "S". DO NOT FORCE. If selector will not seat, check position of dress knob mark.

Wheel replacement

Replace the grinding wheel when it has been worn down from the original 5″ to 4″ dia. CAUTION: REPLACE A CRACKED WHEEL IMMEDIATELY!

For replacement, use only a B&D Cat. No. 43000 5″ x ¾″ wheel. This wheel is designed specifically for this tool.

To replace the grinding wheel:

1. UNPLUG TOOL.
2. Remove 3 screws holding wheel cover and remove cover.
3. Hold wheel with a rag to keep it from turning and remove spindle nut and clamp washer (LEFT HAND THREAD—TURN NUT CLOCKWISE). Remove wheel.
4. Move guard band and finger guard to uppermost position (Figure 10).
5. Attach new wheel (Fig. 7) (Note that the wheel is marked to show which side faces out.) with clamp washer and spindle nut. Hold wheel with a rag and tighten nut counterclockwise. Do not overtighten.
6. Adjust guard band and finger guard to about 1/16″ from wheel (Figure 10) and tighten adjusting screws.
7. Replace wheel cover.
8. For best results dress the new wheel with the diamond dresser.

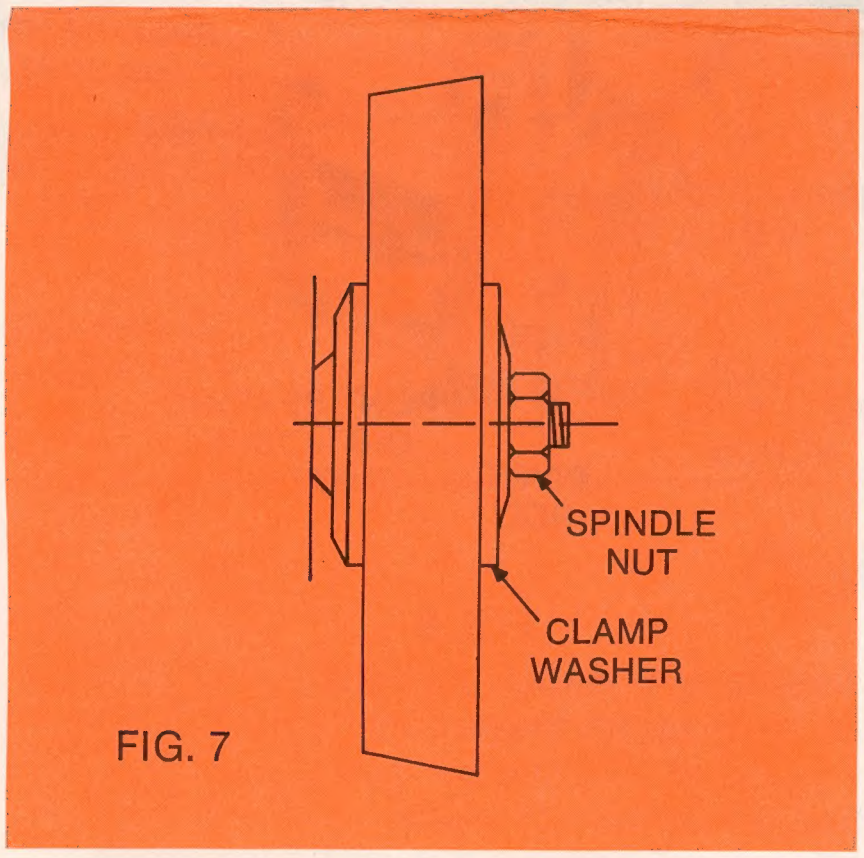
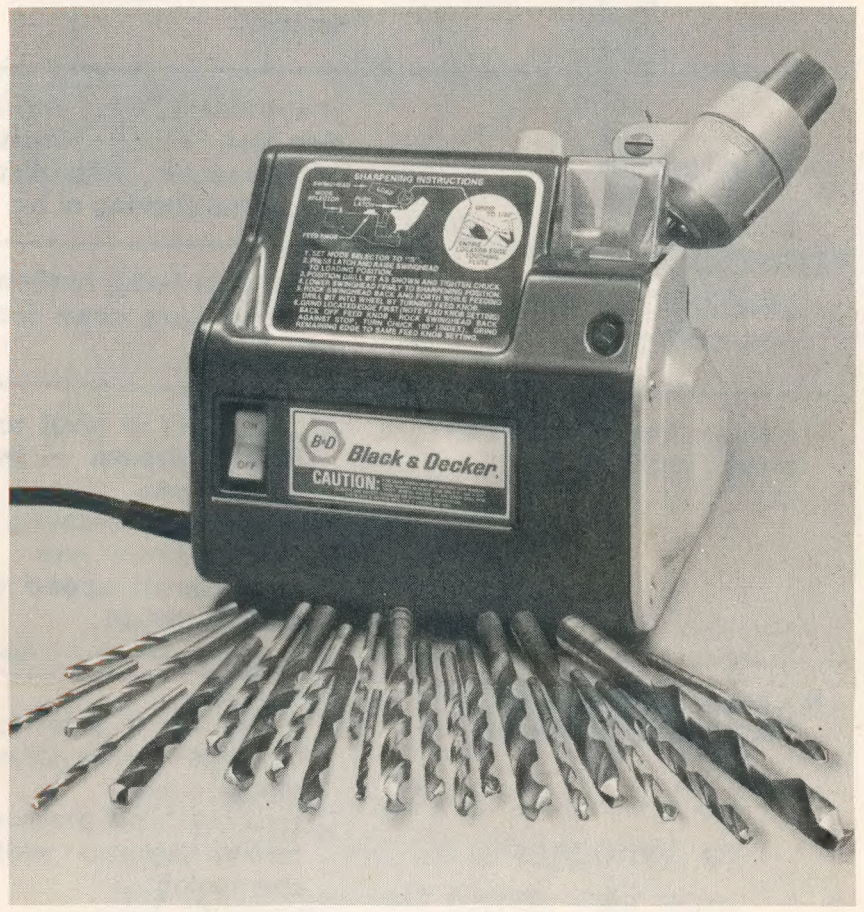


FIG. 7

Maintenance

Self lubricating bearings are used in the tool and periodic relubrication is not required. However, it is recommended that, once a year you take or send the tool to a B&D Service Center for thorough cleaning and inspection.

Important To assure product SAFETY and RELIABILITY, repairs, maintenance and adjustment should be performed by B&D Service Centers or other qualified service organizations, always using Black & Decker replacement parts.



Troubleshooting

PROBLEM	REMEDY
1. Chisel angle too great—greater than 135°	Bit was not ground close enough to locator or was positioned incorrectly. See Step 6 under "Preparing to sharpen," Page 6.
2. Chisel angle too small — less than 120°	Edge of locator was not flat against flute. See Step 6 under "Preparing to sharpen," Page 6. Or bit was ground too close to locator.
3. Bit will not drill	Insufficient relief angle. See Step 6 under "Preparing to sharpen," Page 6, for proper positioning of bit.
4. Discoloration (burning) near cutting lips	Material is being removed too fast. Slow down feed rate.
5. Flats or chatter marks on ground surfaces	A. Looseness in pivot rod bearing system — see adjustments B. Wheel needs dressing C. Feed at slower rate D. Slow down speed of rocking motion
6. Large variation in lip height (point off center)	A. Bent bit B. Looseness in pivot rod bearings—follow adjustments C. Unequal hand pressure on swinghead while sharpening
7. Swinghead will not stay locked in sharpening or dressing position	Latch set screw needs adjustment.
8. Hard to pivot swinghead back and forth	Gib screws adjusted too tight.
9. Bent locator	Place a ⅛" bit in chuck and bend locator until the tip is directly over bit center or replace locator.
10. Unit getting unusually hot	Check motor air intake and exhaust openings on bottom of tool for blockage.

Adjustments

FROM TIME TO TIME ADJUSTMENTS MAY BE NECESSARY DUE TO WEAR OR SEVERE HANDLING OF THE UNIT DURING SHIPMENT OR MOVEMENT FROM PLACE TO PLACE. SHOULD ADJUSTMENTS BECOME NECESSARY, THE FOLLOWING PROCEDURES SHOULD BE FOLLOWED CAREFULLY TO INSURE PROPER AND SAFE OPERATION OF YOUR SHARPENER.

UNPLUG TOOL BEFORE MAKING ANY ADJUSTMENTS

1. Looseness in Pivot Rod Bearing System (Fig. 8)
   - A. Set selector lever to "S" (sharpen).
   - B. Position swinghead with locator approximately ⅛" above wheel.
   - C. Loosen both front bearing gib screws until slight side play in pivot rod is evident.
   - D. While rocking swinghead, adjust back bearing gib screw until very slight pivoting resistance is felt. Back off screw ⅛ to ¼ turn.
   - E. Adjust front bearing top and bottom gib screws evenly, while rocking swinghead, until slight pivoting resistance is felt.

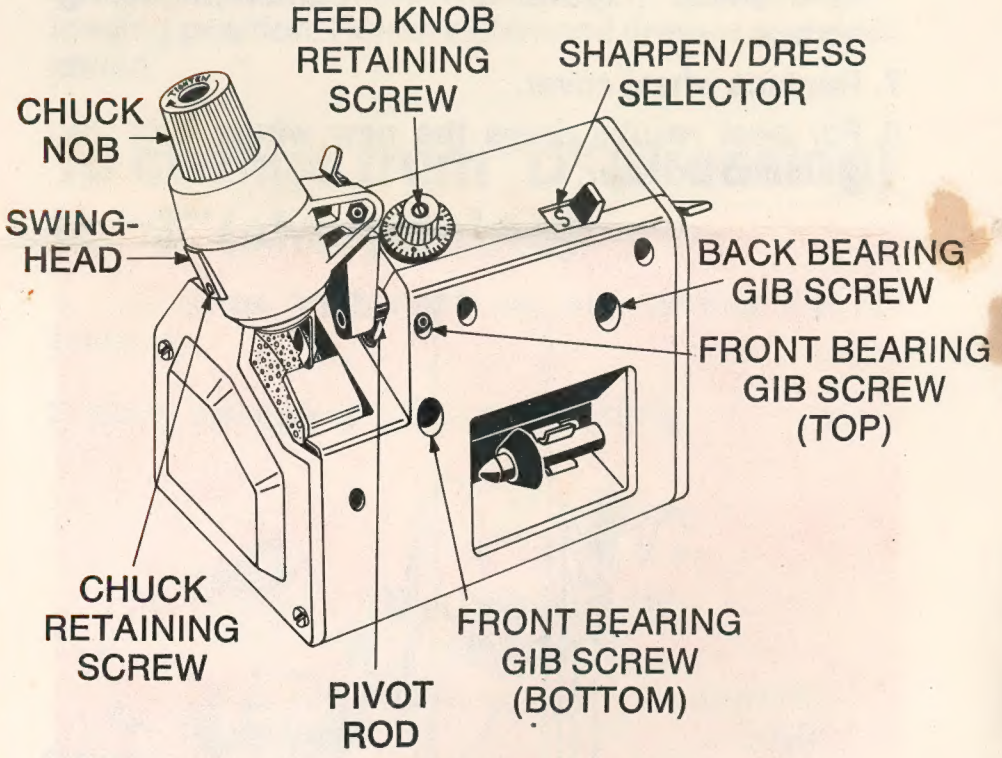


FIG. 8

2. Latch Adjustment (Fig. 9)

A. Move swinghead to Sharpening Position.

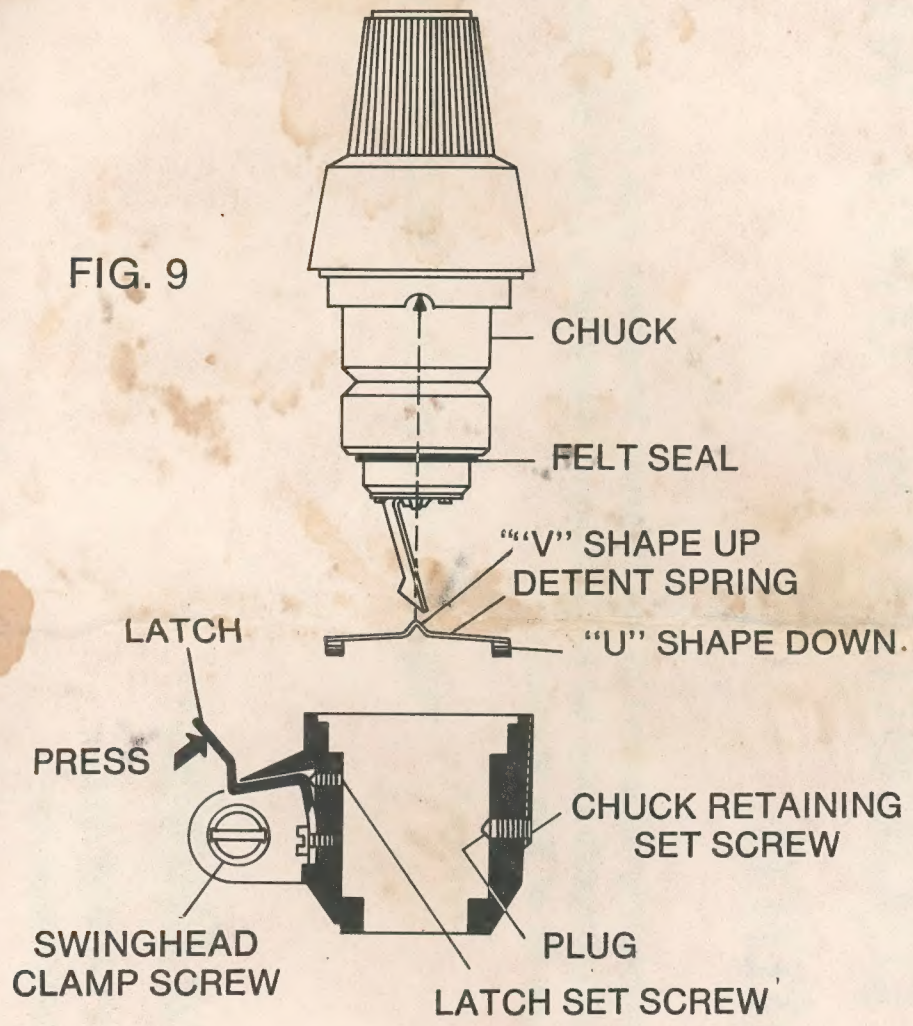
B. Loosen chuck retaining set screw with ⅛" Allen wrench *until* chuck and detent spring can be *removed* from swinghead.

C. Adjust latch set screw with 1/16" Allen wrench so that swinghead locks firmly into sharpening position.

D. Replace detent spring (note orientation of "U" and "V" shaped projections) and chuck.

E. Tighten set screw so that chuck is snug in swinghead but can be easily rotated.

FIG. 9



3. Finger Guard and Guard Band (Fig. 10)

Adjust opening between guards and wheel to 1/16" by means of adjusting screws as shown. Maintain clearance as wheel wears.

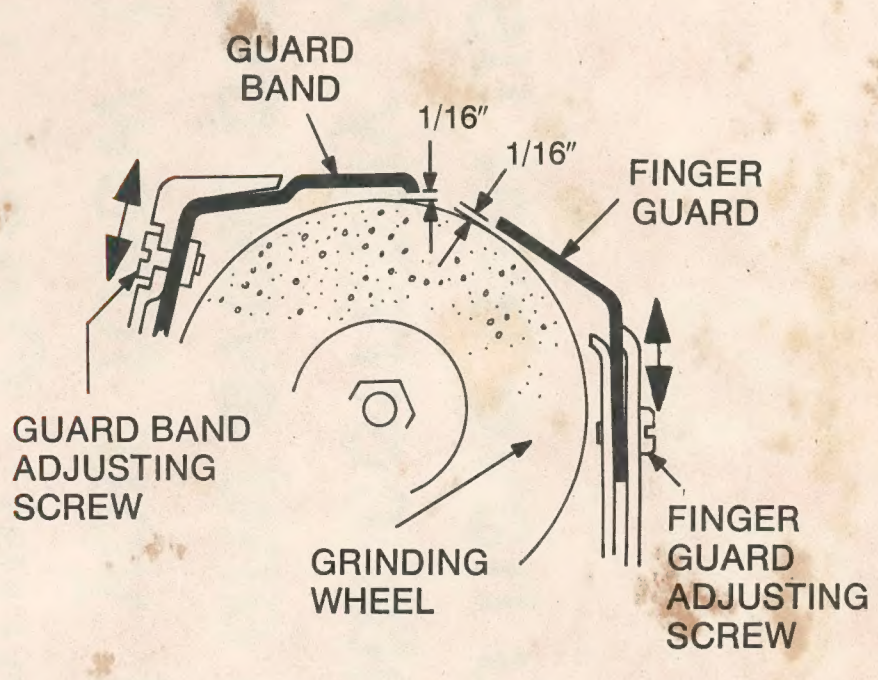


FIG. 10

For quick service of any kind on your B&D Drill Bit Sharpener, or for replacement parts, call your nearest Black & Decker Service Center.

Guarantee

Black & Decker guarantees for one year from date of purchase, to correct by repair or parts replacement without charge any defect due to faulty material or workmanship. Simply return the complete unit, transportation prepaid, to any Black & Decker Service Center or Authorized Service Station. Naturally, we assume no responsibility for damage caused by misuse, careless handling or where repairs have been made or attempted by others. No other guarantee, written or verbal, is authorized by us.

IMPORTANT

This tool is unlike any you have ever used before. It's easy to operate correctly, but to get satisfactory results and avoid problems, it is essential that you follow the instructions in this manual. Once you know the procedures, they will become second nature.

NOTE: This sharpener is completely adjusted at the factory. However, due to rough handling that might occur during shipment, slight readjustments may be necessary. Please take a few minutes to check the adjustments of your unit, referring to page 10 of this manual.

THE BLACK & DECKER MFG. CO., Towson, Md. 21204, U.S.A.

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HEAVY-DUTY POWER TOOLS FOR THE PROFESSIONAL

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